Fermilab

Cryogenic Safety Subcommittee

CRYOGENIC SAFETY SUBCOMMITTEE MEETING MINUTES①

CSS members (P=Present, A=Absent, G= Guest)

Arkadiy Klebaner, Chair	P	Phil Pfund, Recorder	P	Bill Cooper	P
Mike Geynisman, Deputy	P	Jim Kilmer	P	Alex Martinez	P
Bob Sanders	P	Rich Schmitt	P		

Date: October 21, 2009

Time: 1:00 pm

Place: MW9, "Outfield" Conference Room

Agenda:

1. Approve last meeting notes – all.
2. Updates from panels – all.
3. General Cryogenic Safety Training Video – Arkadiy Klebaner
4. Update on Team Center Engineering work – Mike Geynisman
5. Any other business – all.

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1. No full meeting of the subcommittee was held on 8/19/09.
2. Minutes of previous meetings are posted at: http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=12288.
3. Arkadiy reported that the MTF panel has reviewed the IB1 buffer tanks installation. There is no other activity.

① Note: These minutes are distributed to all members of the CSS via e-mail to obtain their comments. Approval is sought at the next meeting. After approval, these minutes are distributed as indicated and posted to the Web.

4. Alex reported that the CDF Panel was involved in a walk through of a Liquid Argon rental dewar which was recently installed at CDF. In addition to the items already provided, the Panel requested that some additional component tags be added, vendor contact information be added to the placard sticker on the dewar and Code compliance statements be obtained from the vendor. The Panel then provided a fill/operation recommendation.
5. Alex reported on the Minos Hall Panel. The T962 Argon experiment has had to replace it's cryocooler with an identical unit borrowed from a different experiment. They encountered reduced capacity operation and decided to do the replacement. As part of this replacement they decided to take the opportunity to add some additional instrumentation as well as add an extra filter to be used during the initial fill. A new pressure test was performed and the safety documents were modified.
6. Phil reported that the Village Panel began a review in March 2009 of the QUIET Cold Black Body Cryostat in Lab 3. This is a vacuum vessel containing an epoxy, called Eccosorb CR-112, attached to a cold head of a cryocooler. The Eccosorb is cooled to 20K-40K, and its thermal radiation (mainly microwaves) is used to study microwave detectors used for CMB polarization research. The device would be operated at several locations over the next several years (2009-2011): PPD Lab 3 Highbay, PPD Lab A, and at KICP at the University of Chicago. The panel has toured the site with the experimenter and generated a list of required analyses and documents. Some of the documents have been submitted and others still need to be revised. There has been no contact from the experimenters for some time.
7. Phil reported that the Village Panel began a review of the liquid Argon and liquid Nitrogen dewars in MP9 in May 2009. The dewars are used to supply room temperature gas to the SRF clean room assembly and the welding glove box in MP9. The dewar system was designed, supplied, owned and maintained by a vendor. As a result, the need for a cryogenic system review was overlooked. This has been corrected and a review is in progress. The MP9 personnel have extended the warm gas plumbing to reach the clean room and welding glove box. The Panel has toured the test site with MP9 personnel and generated a list of required analyses and documents. MP9 personnel supplied a folder of hardcopy documents which are being distributed to the panel for review. The ODH analysis is still being revised.
8. Phil reported that the Village Panel began a review in July 2009 of the Solid Xenon Test Stand in Lab F. The experiment is intended to demonstrate the ability to grow solid Xenon crystals which in the future will be used in detectors. The stand consists of an inner glass vessel mounted inside a bigger glass vessel. Both glass vessels are mounted inside a stainless steel vessel with vacuum windows. Xenon will be solidified in the inner glass vessel using liquid Nitrogen

in the outer glass vessel. The inner volume of the stainless steel vessel will be evacuated to function as a vacuum insulation and as a protective chamber for the glass vessels. A large low pressure storage tank system is included to protect the Xenon vessel against pressurization and serve as a collection volume. The storage tank system is designed to operate below atmospheric pressure. The panel visited the test site, met with the experimenters, and generated a list of required analyses and documents. Documents were provided to the panel and have been revised several times. The review is nearing completion with some final top flange calculations by the experimenter. The system will be relocated to PAB in a few months and run at higher inventory of fluids. The Panel recommendation to PPD management is that the system be approved to operating in Lab F but the panel intends to perform a fresh review during the installation at PAB.

9. Phil reported that the Village Panel was notified in October 2009 that the ODH analysis for the clean rooms in Lab 3 has been revised. The ODH document was provided and is under review.

10. Phil reported the Village Panel was notified in October 2009 that the modifications Dark Energy Survey (DES) Lab A test cryogenic piping are ready for review. The instrumentation on the 200L vessel, transfer line, and the valve box are altered from the original piping note. Some instrumentation near the 200L vessel (outside Lab A) is replaced with different part numbers and is itemized in the valve list. The bypass valve in the valve box is removed. The 65 foot triple jacket transfer line is replaced with a 20 foot single jacket transfer line. The 20ft transfer line contains a specialized end fitting for electrical isolation. All of the materials, and line sizes are within the parameters of the original piping system engineering note. No changes to the MAWP or relief system are made.

11. Mike reported there was no D0 panel activity.

12. Mike reported there was no NML panel activity.

13. Rich reported on CHL Panel activity. The CHL Panel was given a list of maintenance tasks accomplished during this shutdown. Two panel members toured the facility and reviewed the relief valve maintenance procedures and record keeping as well as other maintenance done. The panel noted that, as usual, the people at CHL are thorough in their approach to safety. Maintenance work on helium turbines is still underway but will be finished soon. The panel recommended approval to cool down the nitrogen re-liquefier and the helium liquefier with either cold box. The Division Head subsequently approved the operation.

14. Bob reported on the activities of the Meson Cryogenic Safety Panel. The panel reviewed a new liquid helium transfer-line installed in the HTC and HINS caves. The panel recommended approval and approval was granted for cool down and operation of the new transfer line. The new safety documentation and much of

the old safety documentation was put on a server for distribution to the safety panel and others. Keeping the documentation on a server is greatly appreciated by the safety panel. Meson is a large system undergoing constant changes; the server will make it much easier to review the system in the future. The transfer-line in the HTC and HINS was fabricated in Germany by Cryotherm in accordance with the European piping code PED. The panel was also informed of the piping modifications to the helium piping in the Horizontal test Stand. These are essentially liquid helium lines inside of a vacuum jacket. The panel decided that these modifications were repairs (replacing flanges and a VCR fitting) and did not require a formal piping engineering note. The panel requested, received, and reviewed documentation on these modifications. After a panel recommendation, permission was given for full operation of the HTC cave including the Horizontal Test Stand.

15. Bill reported there was no Tevatron panel activity.
16. Jim reported on the H2 targets panel. The Muons, Inc RF test cell has been slightly modified by adding a new RF pickup port. The cell passed its pressure test earlier this week. We expect to be asked to do a walkthrough very soon before giving them a recommendation to operate again. There has been some contact just beginning with the experimenters on E906 who also want H2 targets. These targets will be an updated version of the target system that was used in E866 years ago. In the initial meeting they said the target safety manual would be very close to the one produced for E866. They have provided us a pdf copy of that original report. In the first meeting we also discussed where they might test their targets at Fermilab when they are ready. At the moment the best place seems to be in the KTEV hall where the experiment will run.
17. Arkadiy made an old cryogenic safety training video available for subcommittee member review. He posed the question of whether the training video is in need of updating.
18. Mike updated the Subcommittee on his continuing efforts to use one of the Cryogenic Engineering Department's projects as a test bed for the use of Team Center Engineering (TCE) as a document management system. Two questions arose from his presentation: (1) Can the forms be pre-loaded with mandatory items required by ESH 5032? (2) Will there be a "light" interface, e.g. browser based access for the "lightly trained" user? Phil subsequently discussed those questions with Tony Metz, who is working with Mike on the TCE effort. Tony said that with respect to (1) there are several ways to make pre-set forms or templates available on the system, and (2) the "next" version (not the one we currently have) of TCE with have a browser interface. Tony will continue to work with Mike.
19. The meeting was adjourned.

Next meeting: Regular subcommittee meetings are scheduled for the third Wednesday on alternating months. The next meeting is scheduled for December 16, 2009 in MW9.

Minutes drafted by: *Philip Pfund, Recording Secretary* *pfund@fnal.gov*
Minutes approved by: *Committee*